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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/980,068	11/28/2001	Michael A. Gibbon	10002/204409	5305
23370	7590	11/01/2005	EXAMINER	
JOHN S. PRATT, ESQ KILPATRICK STOCKTON, LLP 1100 PEACHTREE STREET ATLANTA, GA 30309			TRAN, TRANG U	
			ART UNIT	PAPER NUMBER
			2614	

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/980,068

Applicant(s)

GIBBON ET AL.

Examiner

Trang U. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2002 and October 03, 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 19-27 is/are pending in the application.
- 4a) Of the above claim(s) 16-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 19-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/04/2002.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-15 and 19-27 in the reply filed on October 03, 2005 is acknowledged.
2. Claims 16-18 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected claims, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on October 03, 2005.

Claim Objections

3. Claim 8 is objected to because of the following informalities: in line 3, the limitation: "the pyramid prism" should be changed to "a pyramid prism". Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-2, 6, 10 and 14-15 are rejected under 35 U.S.C. 102(e) as being anticipate by Bleha et al. (US Patent No. 6,017,123).

In considering claim 1, Bleha et al discloses all the claimed subject matter, note

- 1) the claimed a plurality of light sources producing a plurality of images is met by the

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projectors 32 and 34 (Figs. 1-6, col. 3, line 36 to col. 4, line 30), 2) the claimed means for superimposing at least two of the images is met by the first and second projectors 32 and 34 are arranged such that the first and second images partially overlap (Figs. 1-6, col. 3, line 36 to col. 4, line 3), and 3) the claimed means for tiling at least two of the images is met by the first and second projectors 32 and 34 are arranged such that the first and second images partially overlap (Figs. 1-6, col. 3, line 36 to col. 4, line 3).

In considering claim 2, the claimed in which the tiling means comprises means for providing enhanced blending in overlapped regions of the tiled images is met by the first and second projectors 32 and 34 are arranged such that the first and second images partially overlap (Figs. 1-6, col. 3, line 36 to col. 4, line 30).

In considering claim 6, the claimed in which each of the plurality of light sources comprises a DMD is met by the light valve 16 (Figs. 1-6, col. 3, line 36 to col. 4, line 30).

In considering claim 10, the claimed further comprising a pre-modulator is met by the light valve (Figs. 1-6, col. 3, line 36 to col. 4, line 30).

In considering claim 14, the claimed in which the tiling means comprises a plurality of mirrors, further comprising a plurality of projection lenses associated therewith is met by one or more optical systems 14 and 18 (mirrors) and one or more projection lenses 20 (Figs. 1-6, col. 3, line 36 to col. 4, line 30).

Claim 15 is rejected for the same reason as discussed in claim 1.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3-5, 7-8, 11 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bleha et al. (US Patent No. 6,017,123) in view of Uehira et al. (US Patent No. 5,300,966).

In considering claim 3, Bleha et al disclose all the limitations of the instant invention as discussed in claims 1 and 2 above, except for providing the claimed in which the tiling means comprises a pyramid prism. Uehira et al teach that referring to FIG. 7, a pyramidal mirror 10 is integrally incorporated with four inclined reflecting surfaces P1 to P4, this pyramidal mirror 10 is located with its apex being set on the optical axis of the projection lens 3, the angles of the four reflecting surfaces P1 to P4 can be set arbitrarily, but are set to 45 degrees in this embodiment, further, liquid crystal light valves 21 to 24 are arranged facing respectively the reflecting surfaces P1 to P4 (Fig. 7, col. 7, line 16 to col. 8, line 34). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the pyramid prism as taught by Bleha et al into Uehira et al's system in order to provide a projector for forming a magnified and projected image with a high definition in a seamless manner, without increasing the pixel density in the liquid crystal light valve 2 or increasing the size of a liquid crystal panel.

In considering claim 4, the claimed in which the pyramid prism comprises a plurality of sides and an apex, the plurality of sides functioning to combine images and the apex functioning to decrease intensity of illumination to provide the enhanced

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blending in the overlapped regions is met by the pyramidal mirror 10 (Fig. 7, col. 7, line 16 to col. 8, line 34 of Uehira et al).

In considering claim 5, the claimed further comprising a projection lens for projecting superimposed, tiled images is met by the projection lens 3 (Fig. 7, col. 7, line 16 to col. 8, line 34 of Uehira et al).

In considering claim 7, the claimed in which the projection lens defines an optical axis and in which position of the pyramid prism relative to the optical axis can vary is met by the optical axis m (Fig. 7, col. 7, line 16 to col. 8, line 34 of Uehira et al).

In considering claim 8, the claimed further comprising at least one polarizing beam splitter interposed optically between at least one light source and the pyramid prism is met by the polarizing beam splitter 114 which interposed optically between at least one light source 104 and the blending device 301 (Fig. 13, col. 6, lines 41-58 of Bleha et al).

In considering claim 11, the claimed further comprising an edge mask interposed optically between the pyramid prism and the projection lens is met by the edge solid mark 204 (Fig. 13, col. 6, lines 41-58 of Bleha et al).

In considering claim 19, the combination of Bleha et al and Uehira et al. disclose all the limitations of the instant invention as discussed in claims 1 and 5 above, except for providing the claimed further comprising a second plurality of light sources producing a second plurality of images and a second projection lens for projecting the second plurality of images or images derived therefrom. The capability of using a second plurality of light sources producing a second plurality of images and a second projection

lens for projecting the second plurality of images or images derived therefrom is old and well known in the art. Therefore, the Official Notice is taken. Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the old and well known of using a second plurality of light sources producing a second plurality of images and a second projection lens for projecting the second plurality of images or images derived therefrom into the combination of Bleha et al and Uehira et al.'s system in order to display different images on one single display device.

8. Claims 9 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bleha et al. (US Patent No. 6,017,123) in view of Uehira et al. (US Patent No. 5,300,966), and further in view of Mead et al. (US Patent No. 5,555,035).

In considering claim 9, the combination of Bleha et al and Uehira et al disclose all the limitations of the instant invention as discussed in claims 1 and 8 above, except for providing the claimed in which the polarizing beam splitter has a reflective and a transmissive face and is interposed optically between the pyramid prism and two light sources, images from one of the two light sources being directed to the reflective face and images from the other of the two light sources being directed to the transmissive face. Mead et al teach that a beam splitter 20 comprising a thin plate 20 or pellicle is disposed in the optical paths of the respective images projected by the image displays 12 which images from one of the two light sources being directed to the reflective face and images from the other of the two light sources being directed to the transmissive face (Fig. 2, col. 2, lines 16-21 and col. 3, line 52 to col. 5, line 14). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to

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incorporate the beam splitter as taught by Mead et al into the combination of Bleha et al and Uehira et al's system in order to minimize any visible contrast variations and luminance fall-off effects in the projected and observed image.

In considering claim 12, the combination of Bleha et al and Uehira et al disclose all the limitations of the instant invention as discussed in claims 1 and 8 above, except for providing the claimed further comprising a combining polarizing beam splitter and an additional polarizing beam splitter interposed optically between at least one light source and the combining polarizing beam splitter. Mead et al teach that a beam splitter 20 comprising a thin plate 20 or pellicle is disposed in the optical paths of the respective images projected by the image displays 12... and the polarizing beamsplitter prism 17 is disposed adjacent an output surface of the image source 11, at the output of the photoactivated reflective liquid crystal light valve 14, projection illumination light is provided by the illumination source 18 and is projected by way of the polarizing beamsplitter prism 17 onto the output surface 16 of the photoactivated reflective liquid crystal light valve 14 (Fig. 2, col. 3, line 52 to col. 5, line 14). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the beam splitter 20 and the polarizing beamsplitter prism 17 as taught by Mead et al into the combination of Bleha et al and Uehira et al's system in order to minimize any visible contrast variations and luminance fall-off effects in the projected and observed image.

In considering claim 13, the claimed further comprising a system of relay lenses that act to permit adjustment of the magnification of the images from each of the light sources is met by the relay lenses 13 (Fig. 1, col. 3, lines 19-35 of Mead et al).

9. Claims 20-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poradish et al (US Patent No. 5,612,753) in view of Bleha et al. (US Patent No. 6,017,123).

In considering claim 20, Poradish et al discloses all the claimed subject matter, note 1) the claimed premodulating light from a light source by at least one premodulator is met by the color wheel 40 (Figs. 1-2, col. 4, lines 32-59), 2) the claimed conveying light from the premodulator to a first SLM to produce a first sub-image is met by the spatial light modulator 30a (Figs. 1-2, col. 4, lines 32-59), 3) the claimed conveying light from the premodulator to a second SLM to produce a second sub-image is met by the spatial light modulator 30b (Figs. 1-2, col. 4, lines 32-59), and 4) the claimed combining the first sub-image and the second sub-image is met by the projection lens 32a and 32b (Figs. 1-2, col. 4, lines 49-63).

However, Poradish et al explicitly do not disclose the claimed combining the first sub-image and the second sub-image in a tiling mechanism to create a tiled image.

Bleha et al teach that in Fig. 2, a projection system 30 with first and second light valve projectors 32 and 34 is illustrated, first light valve projector 32 projects a first image onto screen 36, second light valve projector 34 projects a second image onto screen 36, first and second projectors 32 and 34 are arranged such that the first and second images partially overlap (Figs. 1-6, col. 3, line 36 to col. 5, line 7).

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the tiled image as taught by Bleha et al into Poradish et al's system in order to project a composite image onto a screen by overlapping the first and second images in an overlap region.

In considering claim 21, the claimed further comprising conveying the tiled image through an edge mask to a projection lens is met by the edge solid mark 204 (Fig. 13, col. 6, lines 41-58 of Bleha et al).

In considering claim 22, the claimed wherein the light source comprises a plurality of light sources is met by the first and second light sources 10a and 10b (Fig. 1, col. 3, lines 6-17 of Poradish et al).

In considering claim 23, the claimed wherein the light is premodulated by two separate premodulators and a first premodulator premodulates light to the first SLM and a second premodulator premodulates light to the second SLM is met by the color wheels 20a and 20b (Fig. 1, col. 3, line 18 to col. 4, line 15 of Poradish et al).

Claim 24 is rejected for the same reason as discussed in claim 20.

In considering claim 25, the claimed wherein the tiled image contains an overlap region where the first sub-image and the second sub-image overlap and the projection system further comprises an edge mask for blending the overlap region is met by the edge solid mark 204 (Fig. 13, col. 6, lines 41-58 of Bleha et al).

In considering claim 26, the claimed further comprising a projection lens for projecting the tiled image is met by the projection lens 20 (Figs. 1-6, col. 3, line 36 to col. 5, line 7 of Bleha et al).

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Claim 27 is rejected for the same reason as discussed in claim 22.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Urey (US Patent No. 6795,221 B1) discloses scanned display with switched feeds and distortion correction.

Popovich et al. (US Patent No. 6,737,603 B1) disclose image generating system including compensation for chromatic dispersion.

Tanaka (US Patent No. 6,224,217 B1) discloses optical illumination apparatus and image projection apparatus.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trang U. Tran whose telephone number is (571) 272-7358. The examiner can normally be reached on 8:00 AM - 5:30 PM, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John W. Miller can be reached on (571) 272-7353. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TT
October 26, 2005



Trang U. Tran
Examiner
Art Unit 2614